"Catalysis of Dioxygen Reduction by *Thermus thermophilus* Strain HB27 Laccase on Ketjen Black Electrodes"

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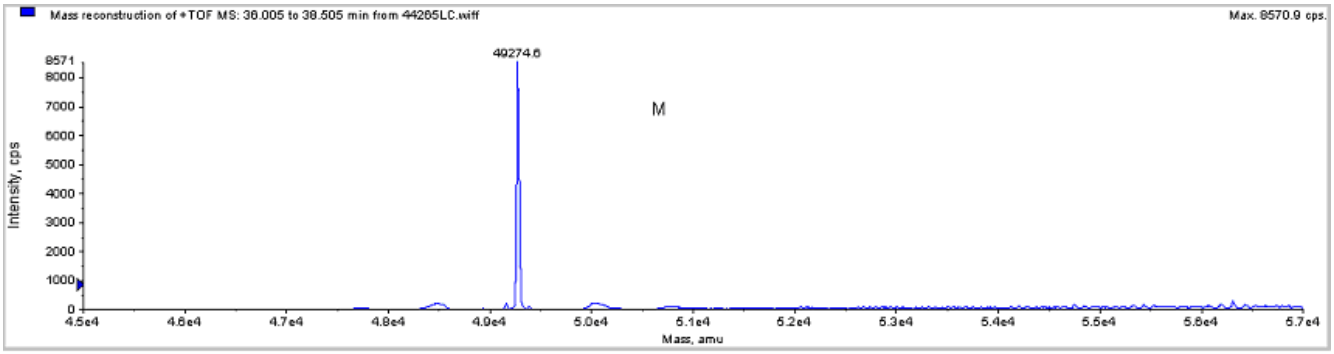
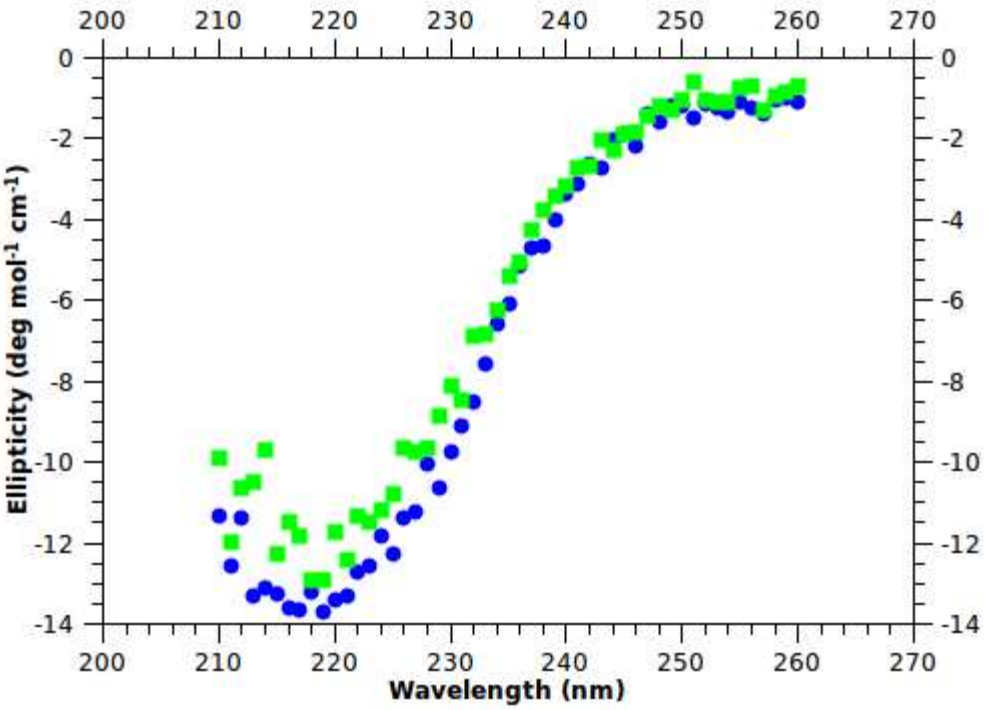
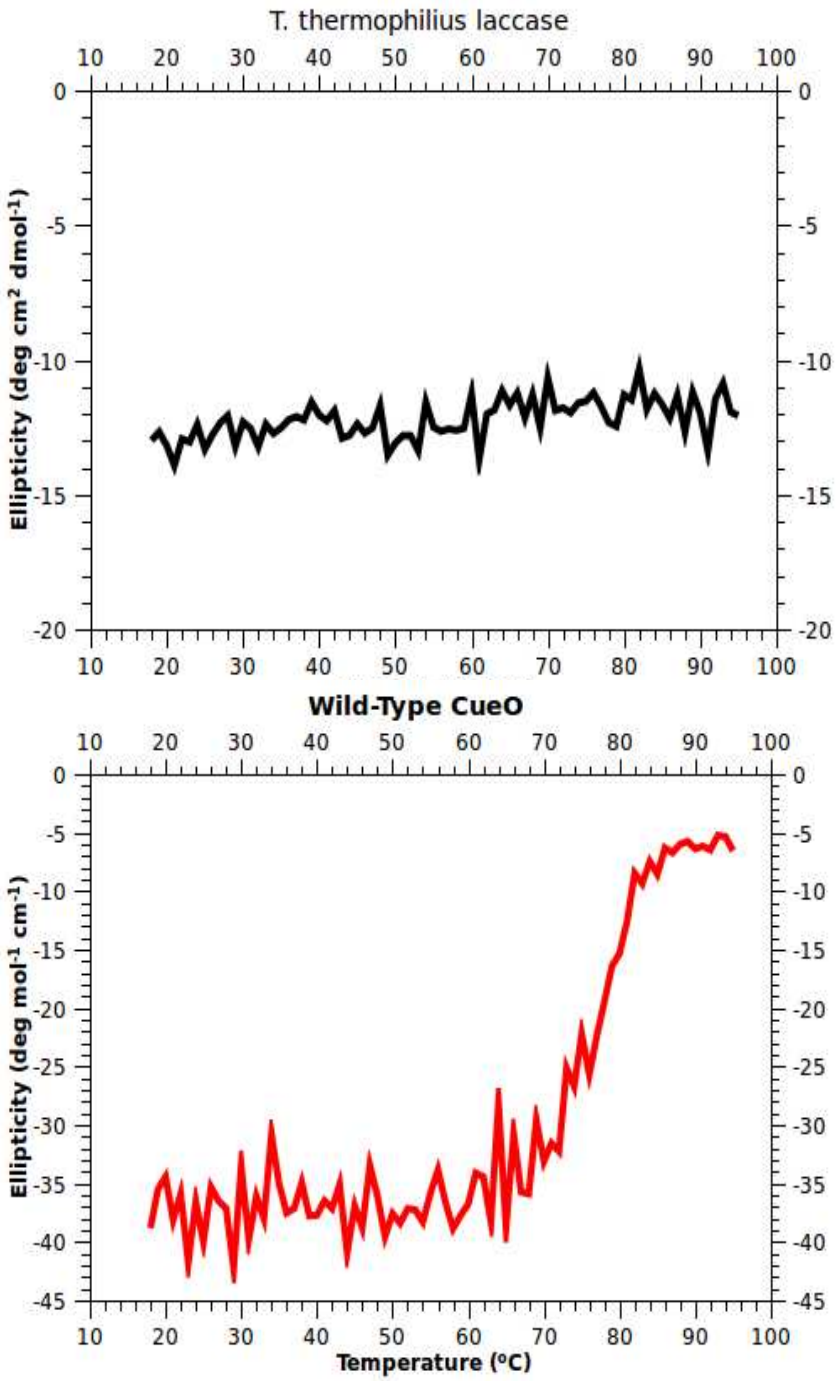
Supporting Information



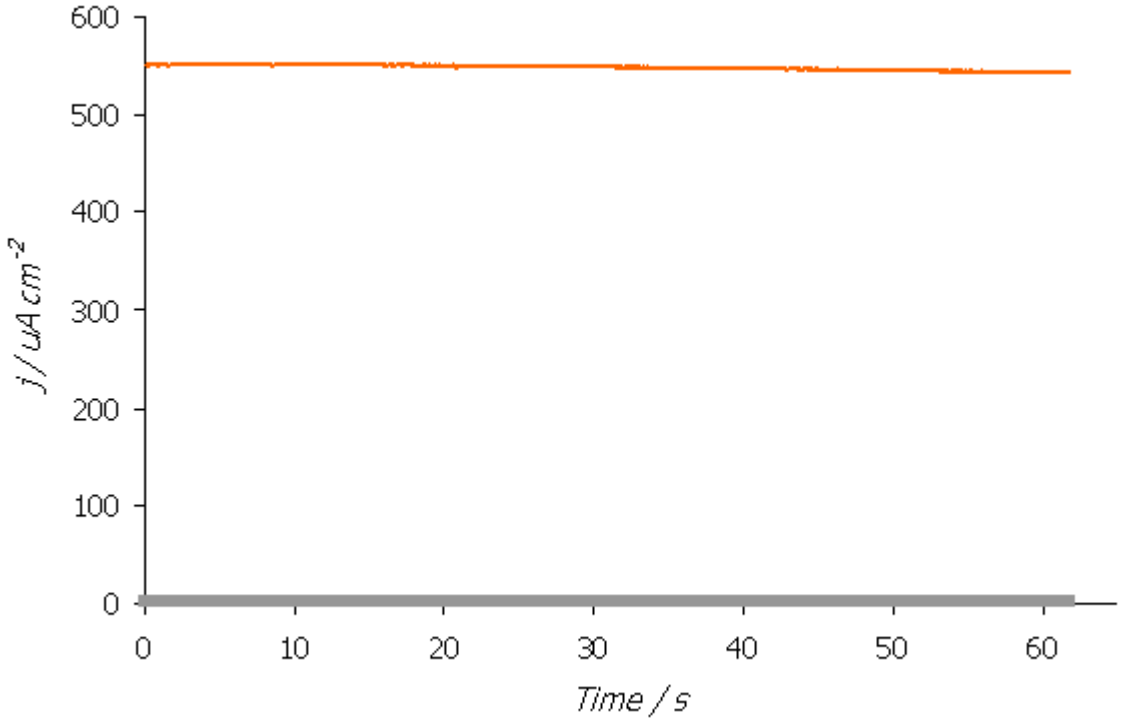
The reconstructed mass spectrum of *Thermus thermophilus* laccase. The observed mass represents a mature form of the enzyme, residues 19-462. Expected mass: 49267.2 da



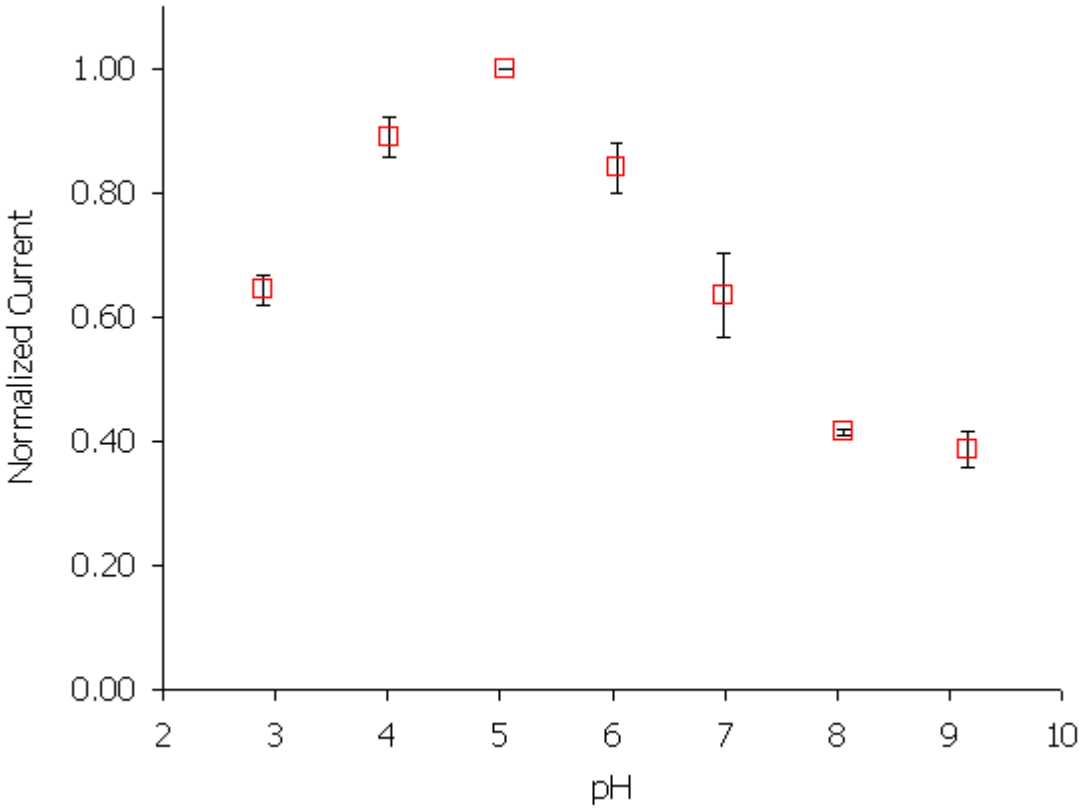
CD scans of laccase taken before (blue) and after (green) titrations between 18 and 95 ^{o}C reveal that the enzyme retains most of its secondary structure even after incubation at high temperatures.

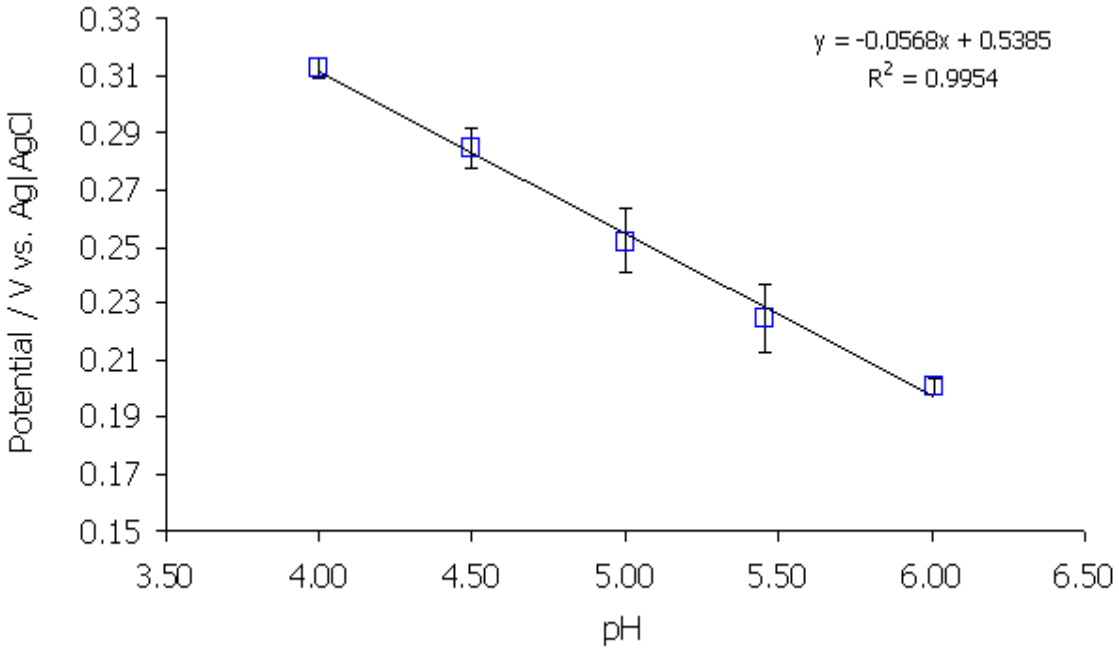


Temperature dependence of ellipticity at 220 nm. *Thermus thermophilus* laccase shows no denaturation transition between 18 and 95 ^{o}C. The denaturation profile for wild-type CueO (red plot) is shown for reference.



Electrolysis of a laccase- modified ketjen black electrode at pH 5.0, 30 ^{o}C. Poising the cathode at 0.0 V vs. Ag|AgCl shows little decay in the current output over the course of an hour (orange trace). A no enzyme control (gray) shows no current production for the ketjen substrates at this potential.





Top: Cathodic current as a function of pH. Bottom: The pH-dependent shifts of the catalytic wave at approximately half-maximum current ($E^{o}_{1/2}$). The regime examined represents the linear region of the enzyme's pH dependence and exhibits a slope of 57 mV decade^{-1}.